

### **REMARKS**

Upon entry of the foregoing amendment, claims 1-12, 14 and 15 are pending in the application, with claim 1 being the independent claim. Claim 7 is sought to be amended. Claim 13 was cancelled by previous amendment without prejudice to or disclaimer of the subject matter therein. Claims 4-12 are currently withdrawn as being directed to non-elected subject matter.

Claim 4 has been amended to correct an obvious typographical error by replacing the phrase “according to any of claim 4” with the phrase “according to claim 4.”

These changes are believed to introduce no new matter, and their entry is respectfully requested. Applicants respectfully request reconsideration of the present application in view of the foregoing amendments and in view of the reasons that follow.

#### **I. The Specification**

The Office provides guidelines illustrating the preferred layout for the specification of a utility application, and states that “[t]hese guidelines are suggested for the applicant’s use.” (Office Action, at pages 4-6, at paragraph 6.)

To expedite prosecution, Applicants have amended the specification to insert section headings consistent with the guidelines provided by the Office and the contents of the specification.

#### **II. Rejection of the Claims Under 35 U.S.C. § 112, first paragraph**

Claims 1-3, 14, and 15 are rejected under 35 U.S.C. § 112, first paragraph, as allegedly failing to comply with the written description requirement. (Office Action, at pages 6-8, at paragraph 7.) Applicants respectfully traverse.

According to the Office, the claims lack adequate written description for the claimed “free base or acid addition salt forms” because

Applicants describe no “free base or acid addition salt forms” in the instant specification. The specification contains no examples that define, or even exemplify, “free base or acid addition salt forms.” Applicants have not described this genus in a manner that would allow one skilled in the art to immediately envisage the compounds contemplated for use. As

such, the claims lack adequate written description for the claimed “free base or acid addition salt forms.

(Office Action, at page 8, lines 17-22.)

Applicants respectfully submit that, contrary to the position taken by the Office, the specification contains numerous examples of the compounds in free base form, e.g., the compounds of Examples 1-25, at pages 5-17. The term “free base” is well known to those of skill in the technical areas of chemistry and pharmaceuticals. See also, e.g., the description of “free base” at [http://en.wikipedia.org/wiki/Freebase\(chemistry\)](http://en.wikipedia.org/wiki/Freebase(chemistry)) (copy attached as Appendix 1)

Moreover, Applicants respectfully submit that one of skill in the chemical and pharmaceutical arts would readily know, and be able to envision, acid addition salts of the disclosed free base compounds, because acid addition salts and methods of making such salts are well known in the art. See, e.g., Castelhanao *et al.*, U.S. Pat. No. 4,970,297, issued November 13, 1990, at column 7, lines 24-45, and column 19, lines 21-39.

Thus, for at least these reasons, Applicants submit that, contrary to the position taken by the Office, the presently claimed subject matter is in fact described in the specification in such a way as to reasonably convey to those skilled in the art that, as of the filing date sought, the inventors had possession of the claimed invention. Accordingly, Applicants believe that the present claims fully comply with the written description requirement.

Applicants believe that the rejections of claims 1-3, 14, and 15 under 35 U.S.C. § 112, first paragraph, have been overcome or rendered moot and respectfully request that they be withdrawn.

### CONCLUSION

Based on the foregoing remarks, Applicants respectfully request that the Examiner reconsider all rejections and objections and that they be withdrawn. Applicants believe that the present application is now in condition for allowance.

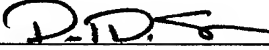
Favorable reconsideration of the application as amended is respectfully requested.

The Examiner is invited to contact the undersigned by telephone if it is felt that a telephone interview would advance the prosecution of the present application.

The Commissioner is hereby authorized to charge any additional fees which may be required regarding this application under 37 C.F.R. §§ 1.16-1.17, or credit any overpayment, to Deposit Account No. 19-0741. If any extensions of time are needed for timely acceptance of papers submitted herewith, Applicants hereby petition for such extension under 37 C.F.R. § 1.136 and authorizes payment of any such extensions fees to Deposit Account No. 19-0741.

Respectfully submitted,

Date 3/31/09

By 

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## APPENDIX 1

# Freebase (chemistry)

From Wikipedia, the free encyclopedia

**Freebase** or **free base** refers to the standalone neutral, basic form of an amine, as opposed to its water-soluble salt form. The amine is usually an alkaloid natural product. *Free base* is commonly used in chemistry and pharmaceuticals to describe the unprotonated amine form of a compound. The adverb *freebase* and the verb *freebasing* are usually restricted to recreational drug-related contexts.

Most alkaloids are unstable and corrosive in their freebase form, and thus are usually stored as ammonium salts. The charged salt is usually much more soluble than the molecular freebase. Common counterions include chloride, bromide, acetate and oxalate. Because of the ubiquity of chloride salts, formed from the reaction of the amine with hydrochloric acid, these amine derivatives are known as the hydrochlorides. For example, compare the free base hydroxylamine ( $\text{NH}_2\text{OH}$ ) with hydroxylamine hydrochloride ( $\text{NH}_3\text{OH}^+ \text{Cl}^-$ ).

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## Preparation

Obtaining a purified free base is often a goal during workup of chemical reactions producing amines. Generally, the amine-containing product is acidified to give the ammonium salt, and extracted with water and an organic solvent such as dichloromethane. The desired ammonium salt dissolves in the aqueous layer, while the impurities (presumably not water soluble) remain in the organic layer.

After adding an appropriate base, the aqueous solution is re-extracted with organic solvent to obtain the free base in the organic layer, leaving simple inorganic salt-impurities behind.

## Freebases in recreational drug usage

When used as a verb, it refers to smoking freebase cocaine, crack cocaine, freebase heroin or more rarely freebase PCP or caffeine. **Freebasing** also refers to the process of freeing the active ingredients of a drug from its adulterants with which, in the slang term, it has been "cut". Adulterants are various substances which are mixed into drugs as fillers by dealers, thus increasing the amount that they can sell. Adulterants commonly include inositol and baby powder in the case of cocaine, and a wide range of substances in the case of heroin.

Drugs smoked in their freebase form are generally more powerful, and act more rapidly, than their salts. This can make freebase drugs even more powerfully addictive than their salt equivalents. Some drugs such as methamphetamine, MDMA, and mescaline are strong-smelling, corrosive oily yellow liquids when in base form and so are rarely ingested as bases, instead almost always being encountered as the hydrochloride or sulfate salts.

### Freebase heroin

Illegal heroin is sometimes distributed in its freebase form, highly adulterated with fillers. The users then

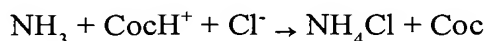
either smoke the drug in its freebase form, or add acid to convert it to its water-soluble salt form to make it injectable. This is typically done by mixing the freebase form of the drug with a commonly available mild acid such as ascorbic (vitamin c) or citric acid, and warming the mixture in a spoon or aluminum foil in order to make an injectable solution.

## Freebase cocaine

As the name implies, "freebase" is the base form of cocaine, as opposed to the salt form of cocaine hydrochloride. Whereas cocaine hydrochloride is extremely soluble in water, cocaine base is insoluble in water and is therefore not suitable for drinking, snorting or injecting. Cocaine hydrochloride is not well-suited for smoking because the temperature at which it vaporizes is very high, and close to the temperature at which it burns; however, freebase cocaine base vaporizes at a low temperature, which makes it suitable for inhalation.

Smoking freebase is preferred by many users because the cocaine is absorbed immediately into blood via the lungs, where it reaches the brain in about five seconds. The rush is much more intense than sniffing the same amount of cocaine nasally, but the effects do not last as long. The peak of the freebase rush is over almost as soon as the user exhales the vapor, but the high typically lasts 5–10 minutes afterwards. What makes freebase a particularly dangerous drug is that users typically don't wait that long for their next hit and will continue to smoke freebase until none is left. These effects are similar to those that can be achieved by injecting cocaine hydrochloride, but without the risks associated with intravenous drug use (although there are other serious risks associated with smoking freebase).

Freebase cocaine is produced by first dissolving cocaine hydrochloride in water. Once dissolved in water, cocaine hydrochloride ( $\text{Coc HCl}$ ) dissociates into protonated cocaine ion ( $\text{CocH}^+$ ) and chloride ion ( $\text{Cl}^-$ ). Any solids that remain in the solution are not cocaine (they are part of the cut) and are removed by filtering. A base, typically ammonia ( $\text{NH}_3$ ) in the case of traditional "freebase" or sodium bicarbonate (baking soda -  $\text{NaHCO}_3$ ) in the case of crack freebase, is added to the solution. Using ammonia as an example, the following net chemical reaction takes place:



As freebase cocaine (Coc) is insoluble in water, it floats over water and the solution becomes cloudy until all the freebase has emerged. To recover the freebase in the "traditional" manner, diethyl ether is added to the solution: Since freebase is highly soluble in ether, a vigorous shaking of the mixture results in the freebase being dissolved in the ether. As ether is practically insoluble in water, it can be siphoned off. The ether is then left to evaporate, leaving behind the nearly pure freebase. Alternatively, the baking soda/freebase solution is simply cooled until the floating freebase hardens, then it can easily be recovered from the surface in the form of "rocks" thereby producing the form commonly known as "crack" or "rock" cocaine.

Since the manufacture of "traditional" freebase involves the use of flammable solvents, it is a dangerous process, particularly since it is often carried out outside a controlled laboratory environment without sufficient safety precautions.

The "traditional" procedure is dangerous because of the hazards of handling diethyl ether: it is extremely flammable, its vapors are heavier than air and can "creep" from an open bottle, and in the presence of oxygen it can form peroxides which can spontaneously combust. It is due both to these dangers and to the relative complexity of the "traditional" ammonia/ether method that the simpler "crack" method with sodium bicarbonate became the norm.

Although freebase cocaine prepared with ammonia and ether is generally purer than freebase cocaine prepared with baking soda but no solvent, the cocaine fumes produced when the product is smoked are approximately equally pure, and the active ingredient ingested is exactly the same. Despite this, for many

years "traditional" freebase smokers scorned "crack" freebase smokers—asserting incorrectly that these were fundamentally different drugs.

## External links

- What does it mean when something is converted to a freebase? (<http://www.erowid.org/ask/ask.cgi?ID=2348>)
- Cocaine-Drug of Illusion (<http://www.cocainehelp.org/mod-subjects-viewpage-pageid-1.html>)

Retrieved from "[http://en.wikipedia.org/wiki/Freebase\\_\(chemistry\)](http://en.wikipedia.org/wiki/Freebase_(chemistry))"

Categories: Alkaloids | Bases

Hidden categories: Articles to be expanded since January 2007 | All articles to be expanded | Articles needing additional references from March 2007 | All articles with unsourced statements | Articles with unsourced statements since June 2008

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